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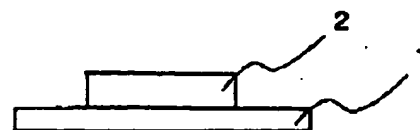
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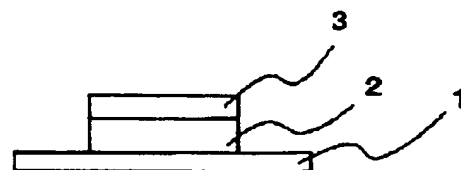
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MANUFACTURE THEREOF

(a)



(b)



(c)



ABSTRACT : PROBLEM TO BE SOLVED: To make adaptable to working processes requiring the heat resistance by fixing an electromagnetic interference suppressor covered with a thermosetting resin to a semiconductor component or wiring board.

SOLUTION: An electromagnetic interference suppressor 3 is mounted so as to cover the top face of a semiconductor component 2 being a noise source disposed on the top of a wiring board 1 mounting CPU etc., and has a compsn. composed of a flat soft magnetic powder of Fe-Al-Si alloy 90 wt. parts, organic binder composed of a polyurethane resin 8 wt. parts and hardening agent 2 wt. parts and solvent 40 w. part. A thermosetting resin such as phenol resin, epoxy resin, etc., is coated so as to cover the entire surface of the electromagnetic interference suppressor 3, set, and hardened by a soldering reflow process to perfectly seal and fix the electromagnetic interference suppressor 3. Thus it is possible to improve the apparent heat resistance, without deteriorating its characteristics.

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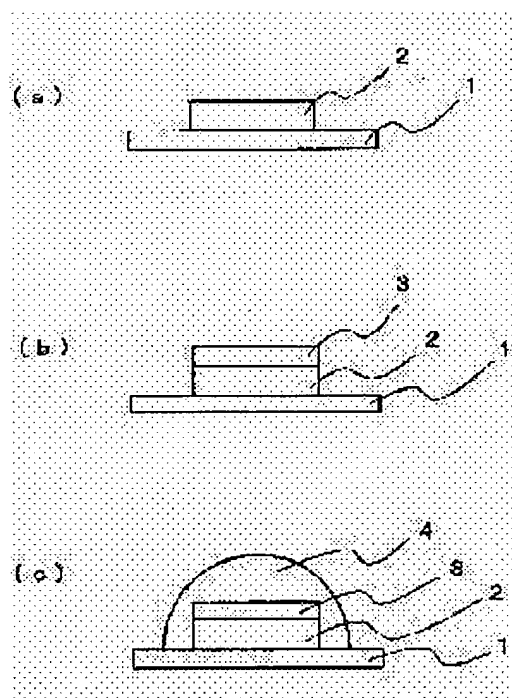
SATO MITSU HARU

(54) ELECTRONIC COMPONENT AND MANUFACTURE THEREOF

(57)Abstract:

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LEGAL STATUS

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the fixed approach of the electromagnetic-compatibility repressor which controls in more detail the radiation noise generated from components, a substrate pattern, etc., or the electromagnetic-compatibility repressor which controls the noise by the static electricity trial about the fixed approach of an electromagnetic-compatibility repressor especially used for the cure against EMI in general electronic equipment about the electronic parts which used the electromagnetic-compatibility repressor, and its manufacture approach.

[0002]

[Description of the Prior Art] In recent years, the miniaturization of the electronic equipment which begin digital electronic equipment and use a RF is remarkable. In the digital electronic equipment especially equipped with arithmetic and program control (CPU) with the high component-mounting consistency to a wiring substrate etc., LSI and IC are mounted on the wiring substrate. This LSI and IC consist of many semiconductor devices as everyone knows. However, it is between wiring on these semiconductor devices or a wiring substrate, and the so-called electromagnetic wave disorder occurs. [0003] The electromagnetic coupling leading to electromagnetic wave disorder, spurious radiation, and a conduction noise were controlled by installing an electromagnetic-compatibility repressor between wiring of a semiconductor device or a wiring substrate to such electromagnetic wave disorder conventionally.

[0004]

[Problem(s) to be Solved by the Invention] By the way, although magnetic powder is kneaded by the resin with which the electromagnetic-compatibility repressor currently used conventionally serves as a binder, the degree of noise absorption changes with fills of the magnetic powder. In order to enlarge a noise absorbed amount more, the fill needed to be made [many], but by the heat-resistant high resin by which current utilization is carried out, when the fill of magnetic powder could not be made [many], but heat-resistant low resin tended to be used on the other hand, the fill of magnetic powder tended to be made [many] and it was going to enlarge the noise absorbed amount, there was a problem that the thermal resistance of an electromagnetic-compatibility repressor fell.

[0005] Moreover, manufacture of the present electronic equipment had to be performed after a reflow, in order soldering of the substrate by the reflow and components is in use and to have equipped with the heat-resistant low electromagnetic-compatibility repressor.

[0006] In order to solve the above-mentioned technical problem, this invention is like soldering of the components by the reflow to offer the electronic parts which can respond to the routing which needs thermal resistance, and its manufacture approach.

[0007]

[Means for Solving the Problem] In the electronic parts using the electromagnetic-compatibility repressor to which this invention controls electromagnetic wave disorder, said electromagnetic-compatibility repressors are the electronic parts which were covered and were fixed to semi-conductor

components or a wiring substrate with thermosetting resin.

[0008] This invention is the manufacture approach of a bonnet and the electronic parts to fix in thermosetting resin about said electromagnetic-compatibility repressor to semi-conductor components or a wiring substrate in the manufacture approach of the electronic parts using the electromagnetic-compatibility repressor which controls electromagnetic wave disorder.

[0009]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of the fixed approach of the electromagnetic-compatibility repressor concerning this invention is explained using a drawing.

[0010] First, the thing of the following presentation was prepared as an electromagnetic-compatibility repressor used for the gestalt of this operation.

<A presentation of an electromagnetic-compatibility repressor> Flat-like soft magnetic material powder 90 weight sections Presentation : A Fe-aluminum-Si alloy Mean particle diameter : 10 micrometers Aspect ratio : >5 An organic binder Polyurethane resin Eight weight sections Curing agent (isocyanate compound) Two weight sections Solvent (mixture of cyclohexanone and toluene) 40 weight section

[0011] Next, this electromagnetic-compatibility repressor was fixed to the wiring substrate as follows.

Drawing 1 is the side elevation showing the routing which fixes the electromagnetic-compatibility repressor in the gestalt of operation of this invention to a wiring substrate. As are shown in drawing 1, and the top face of the semi-conductor components 2 which are noise sources of release arranged in the upper part of the wiring substrate 1 in which CPU currently used for the notebook computer with which a miniaturization and lightweight-ization are demanded is carried is covered, the electromagnetic-compatibility repressor 3 is carried.

[0012] furthermore, the electromagnetic-compatibility repressor 3 -- a whole surface wrap -- thermosetting resin 4, such as phenol resin, an epoxy resin, or an unsaturated polyester resin, is applied, and like, after fixing, an about 240-degree C soldering reflow process is passed, and thermosetting resin is stiffened, and an electromagnetic-compatibility repressor is confined thoroughly and it fixes.

[0013] Thereby, the thermal resistance on appearance can be raised, without degrading the property. Moreover, it is protected from the environment from the outside and the endurance also improves because thermosetting resin has covered the periphery.

[0014] When the electromagnetic-compatibility repressor fixed with the thermosetting resin by this invention was used, after reflow process passage, deterioration was not generated in an electromagnetic-compatibility repressor and nonconformity was not generated. In addition, when thermosetting resin was not used but a reflow process was passed, deterioration of an electromagnetic-compatibility repressor was intense, and a result which cannot bear a long-term activity was brought and it was not able to respond to a reflow process.

[0015] With the gestalt of this operation, an electromagnetic-compatibility repressor is carried and thermosetting resin is applied, and although it is fixing, also about a noise source-of-release [in which components do not exist], for example, wiring substrate pattern, top, an electromagnetic-compatibility repressor may be carried and you may fix with thermosetting resin, for example, so that the top face of the semi-conductor components which are noise sources of release may be covered.

[0016]

[Effect of the Invention] As mentioned above, as explained, according to this invention, it became possible to pass a reflow process of the semi-conductor components or wiring substrate which fixed the electromagnetic-compatibility repressor with thermosetting resin. Furthermore, about the electronic parts which used the electromagnetic-compatibility repressor fixed with the thermosetting resin which is this invention, also after passing a reflow process, it does not generate but deterioration of an electromagnetic-compatibility repressor is effective in the dependability of electronic parts or a device improving.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] They are the electronic parts characterized by having covered said electromagnetic-compatibility repressor with thermosetting resin to semi-conductor components or a wiring substrate in the electronic parts using the electromagnetic-compatibility repressor which controls electromagnetic wave disorder, and being fixed.

[Claim 2] The manufacture approach of the electronic parts which characterize said electromagnetic-compatibility repressor as a bonnet, and are characterized by fixing with thermosetting resin to semi-conductor components or a wiring substrate in the manufacture approach of the electronic parts using the electromagnetic-compatibility repressor which controls electromagnetic wave disorder.

[Translation done.]